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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,966	12/05/2001	Timothy R. Spooner	Analog5721-4	1813

7590 11/24/2003  
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EXAMINER

GEYER, SCOTT B

ART UNIT PAPER NUMBER

2829

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/006,966	<b>Applicant(s)</b> SPOONER ET AL.	
	<b>Examiner</b> Scott B. Geyer	<b>Art Unit</b> 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-68,99-111,115-121,123 and 128-141 is/are pending in the application.  
4a) Of the above claim(s) 122 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-68,99-111 and 128-141 is/are allowed.
- 6) ☒ Claim(s) 115-121 and 123 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

The instant office action addresses claims 1-68, 99-111, 115-121, 123 and 128-141. The previously-withdrawn claims, which were dependent on either claim 1 or claim 35 have been rejoined and are listed as allowable as detailed below.

Claims 115-121 and 123 are rejected using newly cited art and as such, this office action is non-final.

Of the pending claims, only claim 121 is currently withdrawn, as it is was not elected and is dependent upon a rejected base claim. However, upon allowability of claim 115, claims 121 would also be rejoined.

### ***Double Patenting***

The applicant's response to the double patenting rejection is acknowledged. As per MPEP 822.01, the rejection of those claims is withdrawn.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 115-121 and 123 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 115 recites "the etched ports providing a possible leak path from the backside of the wafer to the front patterned side

of the wafer” in lines 3-4. As to “providing a possible leak path”, the examiner is unclear as to the bounds of claim 115 due to the usage of the word “possible”, and as such the scope of claim 115 is unclear to the examiner. For purposes of examination, the phrase “the etched ports providing a possible leak path from the backside of the wafer to the front patterned side of the wafer” will not be given patentable weight as it is unclear as to what the applicant intends by “possible”. Claims 116-121 and 123 are also rejected as they are dependent upon claim 115, and thus necessarily contain all of the limitations of claim 115.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 115, 116 and 120 are rejected under 35 U.S.C. 102(b) as being anticipated by Sasaki et al. (5,888,883).

As to **claim 115**, Sasaki et al. teach a method of protecting a wafer during dicing wherein a wafer 21, having a front patterned side and a backside with etched ports 22 is mounted to a dicing tape 26 (see figures 8 and 9B). The wafer is then diced into individual chips as seen by figure 11.

As to **claim 116**, dicing with a saw is notoriously well known in the art of semiconductor manufacturing. For example, Sasaki et al. teach formation of dicing lines with a diamond scribe or a diamond blade (column 1, lines 13 et seq.).

As to **claim 120**, Sasaki et al. teach removal of the diced chips from the dicing tape, as evidenced by figures 11 and 12.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 117 and 121 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (5,888,883) as applied to claim 115 above, and further in view of Arisa (6,426,275).

As to **claim 117**, Sasaki et al. teach all of the claimed limitations as recited above, except for the layer of dicing tape having a UV releasable adhesive. However, Arisa teaches a dicing tape having a UV releasable adhesive (see column 3, lines 55-67). At the time of the invention, it would have been obvious to modify the method of Sasaki et al. with a UV releasable adhesive as taught by Arisa so as to enable removal of the dicing tape without requiring physical touching of the delicate semiconductor wafer.

As to **claim 121**, Arisa teaches removal of the dicing tape with UV light (see column 3, lines 55-67).

***Allowable Subject Matter***

Claims 118, 119 and 123 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding a dicing tape which is heat shrinkable as in claim 118, 119 or removing the dicing tape by first exposing the dicing tape to UV radiation and then exposing the dicing tape to heat. (Applicant is reminded that these claims are currently rejected under 35 USC 112, 2<sup>nd</sup> paragraph, and that merely combining the subject matter of one of these claims into the independent claim will not overcome the 112 rejection.)

/

Claims 1-68, 99-111 and 128-141 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding:

A method of protecting a MEMS structure during a dicing step as characterized by preparing a wafer having a plurality of MEMS structure sites on a first side of the wafer and a plurality of through holes on a second side of the wafer and mounting a

wafer cap to the first side of the wafer, thereby forming a laminated MEMS wafer, in combination with the other claimed elements as in independent claims 1 and 35.

Claims 2-34, 36-68, 99-111 and 128-141 are all dependent, either directly or indirectly upon claims 1 or 35.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703) 306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: [scott.geyer@uspto.gov](mailto:scott.geyer@uspto.gov)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SBG 11/13/03

  
EVAN FERT  
PRIMARY EXAMINER

SBG  
November 13, 2003